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## Military Leadership in the Seventies: Selected Analyses

Michael R. Vaughan, Richard E. Kriner and  
Joel M. Reaser

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HUMAN RESOURCES RESEARCH ORGANIZATION  
300 North Washington Street • Alexandria, Virginia 22314

June 1973

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Prepared for

U.S. Army Research Institute for the  
Behavioral and Social Sciences  
1300 Wilson Boulevard  
Arlington, Virginia 22209

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Final Report

# Military Leadership in the Seventies: Selected Analyses

by

Michael R. Vaughan, Richard E. Kriner and  
Joel M. Reaser

HumRRO Division No. 2  
Fort Knox, Kentucky

Work Unit LEADFACT

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## FOREWORD

This report describes activities performed by the Human Resources Research Organization during LEADFACT, a project conducted for the Army Research Institute for the Behavioral & Social Sciences. The principal objectives were to determine techniques for modification and refinement of the CONARC Board survey questionnaire and to generate analyses providing additional information about the nature of leadership in the Army.

To fulfill these objectives, a three-phase effort was implemented involving (a) factor analyses of responses to the survey, (b) a selective demographic analysis, and (c) a correlation/regression analysis pertaining to the primary response categories in the survey: DO, SHOULD and IMPORTANCE.

In addition to providing the results derived from the analytic operations, recommendations for future application in this area are indicated.

The work of this research project was performed by HumRRO Division No. 2, Fort Knox, Kentucky. The Director of the Division is Dr. Donald F. Haggard. Mr. Michael R. Vaughan was the Project Director and was assisted by Dr. Richard E. Kriner and Dr. Joel M. Reaser. Significant contributions were made in data analysis by Mr. Gary Hartzler and Mr. Thomas Berrisford.

Particular thanks are due to Dr. Owen Jacobs, Director of HumRRO Division No. 4, who provided fruitful conceptual and theoretical guidance. The assistance, support and cooperation of Lt. Colonel Thomas A. Rehm was also of great value.

The work was performed under Contract DAHC19-73-C-0047 and was administered by the U.S. Army Research Institute for the Behavioral & Social Sciences.

Donald F. Haggard  
Director of Research  
HumRRO Division No. 2

## SUMMARY AND CONCLUSIONS

### PROBLEM

This research was initiated to attempt to provide additional information about military leadership through a selected analysis of data derived from the CONARC Board Survey and to make recommendations for modification and refinement of the questionnaire used to implement this survey. The context of the research was that of preparing for further application of survey research in military leadership by defining additional relationships in the existing data file and enhancing the heuristic value of the research instrument.

The report describes the methods and results of the research investigations, together with an interpretation and discussion of these results. Recommendations generated from the analyses conducted are presented.

### APPROACH

The approach to the first objective of refining the survey instrument to make it more efficient involved two statistical analyses: a factor analysis of the items and an intercorrelation analysis of the three response scales (DO, SHOULD, IMPORTANCE). The data were categorized into rater-ratee subgroups and the responses of each subgroup on DO and SHOULD scales for all 43 behavior items were factor analysed. This factor analysis approach then yielded the major factors underlying responses to the items. Common factors were found across subgroups and the items contributing to these factors were identified. These identified items were then selected as candidate items for inclusion in a refined survey instrument.

In addition to the factor analysis of items, the intercorrelations of the three response scales were computed as well as a regression analysis of the mean scale responses. The intercorrelation of scale means was intended to demonstrate the extent to which each response scale (DO, SHOULD, IMPORTANCE) provided unique information. Where a high correlation is found between two response scales it is possible to delete one of those scales since it can be predicted fairly well from responses on the other. If all of the desired information can be predicted from a single response scale, using additional scales simply provides redundant information. This intercorrelation and regression analysis of the response scales was performed to answer that question.

In approaching the second objective of providing additional insight into leadership in the Army, the factor analyses and an analysis of the relationship of selected demographic variables to rater's responses were utilized. Those factors stemming from the factor analysis provide information regarding the dimensions on which people judge the leadership behaviors of themselves or others. Deriving these factors and describing them as well as relating the individual items to particular factors provides considerable insight into Army leadership.

In relating demographic characteristics of raters to their ratings, race, age, education and unit type/location of the rater were selected as the most worthy of consideration. The relationship of each of these demographic characteristics to the mean rating on each item was then examined. Where important differences occur, these differences provide additional insight into leadership behaviors in the Army.

## RESULTS

The research effort developed four basic results pertaining to leadership and the leadership survey instrument.

- (1) Six dimensions of leadership were identified by factor analysis: Professionalism, Authoritarianism, Task-oriented Consideration, Need-oriented Consideration, Social Support, and Facilitation.
- (2) A three-step procedure resulted in specification of a reduced set of items appropriate to measurement of the leadership dimensions.
- (3) The three response categories of the questionnaire -- DO, SHOULD and IMPORTANCE - were shown to be highly correlated.
- (4) Responses to the questionnaire were shown to be related to selected background variables, especially age. As age increased among respondents, the scaled responses to questionnaire items also increased.

## CONCLUSIONS

- (1) A modified questionnaire should be used in future administrations of the survey, incorporating items directly related to the dimensions found in this study.
- (2) Consideration should be given to deletion of the SHOULD and IMPORTANCE response categories.
- (3) The resulting modified questionnaire should be expanded to include the Consideration and Structure scale items used in the previous research (e.g., scales from the LBDQ Form XII).
- (4) More data is needed to refine the dimensions of leadership found in this study. This would involve readministration for reliability/validity testing.
- (5) In further administration of the survey, consideration should be given to generating standardized response data with selected sub-groups of the population (e.g., age of rater).
- (6) Future research should allow for comparisons with previous findings in the civilian community. This would enable a better perspective on the status of leadership in the Army to develop.



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## I. INTRODUCTION

In response to General Westmoreland's 1971 request for guidance and renewed studies on leadership, the Army War College conducted a survey of 1800 personnel at all grade levels in the service. The study was in context of the concepts of "informal contract" and "leadership climate." The questionnaire developed for this initial study was subsequently used to survey three groups of Army personnel. One group rated superiors, one subordinates, and one gave self-ratings. These studies have the common goal of assessing the character of current leadership in the Army and identifying areas for potential improvement.

Subsequent to the Army War College survey, the CONARC Leadership Board, headed by Brigadier General Henry C. Emerson incorporated the techniques and findings of the AWC study into its seminar program. Also, a second survey, based on the AWC survey, was designed and implemented with a sample of approximately 30,000 respondents. The survey was intended to confirm and amplify the earlier work by the AWC study group.

The research reported in this report represents a set of analyses of data derived from the CONARC (Emerson Board) survey of 30,000 respondents. It is intended to add to the data file already generated from this survey pertaining to military leadership characteristics.

## II. BACKGROUND

The role of the leader in the Army today continues to increase in complexity. The leader is expected to perform effectively in a broad range of technical, administrative and command areas. The environments in which he operates become more demanding; increased technical knowledge is required in all areas of specialization; there is a broadening range of military as well as political and social situations in which he must act; and there are an expanding number of military, political and social problems with which he must deal.

One significant part of the changing environment in which the Army leader must operate is the implementation of the all-volunteer force. A new set of problems arise with AVF. The leader must learn his part in attracting and keeping sufficient numbers of qualified personnel.

The recognition of the problems to be encountered by leadership in an AVF environment gave rise to the renewed study of leadership in the Army. The study conducted by the U.S. Army War College was the first response to this concern. A review of leadership concepts and principles by a committee of researchers in the area of organizational leadership resulted in a battery of items describing the behavior components important to leadership in the Army today. Items selected were based on the extensive work performed at Ohio State, the traditionally accepted principles of leadership, and the dimensions of behavior expected to be important to the long range high quality performance of the Army's mission.

Other concepts presented in the literature in organizational research were also applied. One such concept is discrepancy measurement between actual and desired levels of behavior. Another was the use of the notion of "informal contract" to provide a theoretical base to the new requirements placed on leadership in the Army in an AVF environment. The informal contract idea was married with the notion of leadership climate to provide the theoretical base. The notion of informal contract conceptualizes the relationship between the individual and the Army organization as being one in which both the individual and organization have expectations and requirements of each other. If each party fulfills its end of the relationship, the individual and the organization will presumably perform adequately.

The function of leadership is to provide a climate wherein both sides of the contract can be fulfilled. One way of viewing this is to see the leader as one who structures the situation so that accomplishment of organizational goals provides a path to satisfaction of individual requirements and expectations.

The study chose a set of leader behavior descriptions derived from those studied extensively by researchers in the area of leadership. Using these behavior descriptions, the leader behaviors of those at all levels in the Army were assessed in terms of what was and what should be.

The findings included the following:

Ratings of performance of leaders varied with the grade level of the rater, i.e., junior NCO's were less satisfied with leadership than were senior level officers.

The relative importance of various leader behaviors varied between rater grade levels.

As stated earlier, a subsequent survey of approximately 30,000 individuals was conducted. Using essentially the same instrument, three groups were asked to rate a subordinate, themselves, or a superior. One thrust of the present analyses of the data from this survey was to determine the dimensions of behavior measured by the instrument. The resulting dimensions varied somewhat depending on whether the ideal or actual leader behavior was considered. However, dimensions very similar to the traditionally accepted and much researched Consideration and Structure did appear. The proportionally greater weight evidenced by Consideration is consistent with the larger number of items in the survey related to this factor. Further discussion of this matter is presented in the results section of this report.

### III. OBJECTIVES OF THE STUDY

Two major research goals were defined for the present study:

(1) suggestions for modification and refinement of the leadership survey instrument -- in preparation for future application; and (2) performances of analyses to generate further interpretive data about the nature of leadership in the Army. To accomplish these objectives, the following research tasks were implemented:

1. An examination of the dimensions of leadership indicated by the survey data. This task was accomplished utilizing a factor analytic technique reported elsewhere in this report.
2. Identification of the relationships between the study variables and salient demographic variables.
3. Analysis of the correlation between the "Do", "Should" and "Importance" categories of response.
4. Recommendations derived from these analyses, including consideration of the nature of future research and the characteristics of a revised research questionnaire.

This report sets forth the results of the analyses, their interpretations and conclusions.

#### IV. METHODOLOGY

The data used in these analyses was that gathered from 30,000 Army personnel in late 1971 and early 1972. The approximately 30,000 questionnaires include a group of individuals who rated their superior, a second group who rated their own leadership behavior, and a third group who rated a subordinate's leader behavior. The questionnaire asked the subject to rate the specified individual on 43 leader behavior descriptions and to rate his overall and combat performance. The 43 leadership items required ratings on the extent to which the rated individual behaved as the item indicated, the extent this leader behavior should be exhibited, and the degree of importance attached to the behavior.

In addressing the first objective, two questions were asked. The first was: Are there any items which can be deleted as redundant? The second was: Are the DO, SHOULD, IMPORTANCE scores actually providing unique information? Analyses to provide answers to these questions included computation of inter-item correlations, factor analyses and computation of correlations between the DO, SHOULD, and IMPORTANCE item mean scores.

Using the BMD statistical programs (Dixon, 1970), inter-item correlation matrices and factor analyses were performed on six of the nine possible subsets of data shown in Figure 1.



Figure 1

Data Subsets

		Item Responses		
		DO	SHOULD	IMPORTANCE
Leadership Ascription Targets	Superordinate	1	4	7
	Self	2	5	8
	Subordinate	3	6	9

Since originally it was the judgment of the researchers that important variations may exist between the DO and the SHOULD data, correlations and factor analyses were carried out for data subsets 1 thru 6.

The programs computed Pearson correlations between questionnaire items and then performed a principal components factor analysis on the correlation matrix. Subsequently a varimax rotation was made of the factors. The conventions suggested by Kaiser (1960) and discussed by Harman (1967), were then applied to determine the number of factors to be considered for discussion. Based on the interitem correlations and the factor analyses, redundant items were identified. The specific results are discussed in the next section.

The second question regarding the questionnaires pertains to whether or not the DO, SHOULD, IMPORTANCE scores are providing unique information. The questionnaire was originally designed with the assumption that there were important differences, real and theoretic, between the three scores. The three scores also were the basis for computation of perceptual and performance shortfall.\* Although perceptual and performance shortfall

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\*See Leadership in the 1970's for definition and discussion of these notions.

scores did vary somewhat from item to item, no statistical treatment was made of the basic assumption that DO, SHOULD, and IMPORTANCE scores provide unique information. To test this assumption the correlation between DO and SHOULD scores and between SHOULD and IMPORTANCE scores were computed on the means of the 43 leader behavior description items. These Pearson correlations are presented in the next section.

The second objective of this research was to provide some additional data concerning the status of Army leadership. Two statistical techniques were applied to the data. First means were computed for each item for a number of demographic subpopulations. The survey population was broken out by racial group, age group, educational level, and type location of unit. The items on which subpopulations varied the greatest were identified.

Second, the factor analyses described above were used to determine the major dimensions of leadership. In part, this strategy was used as a check to see if the factors found in these data are comparable to the traditionally accepted dimensions of Consideration and Initiation of Structure (Fleishman, 1971). It was recognized at the outset, however, that the factors would not be identical since the 43 items used in the Army survey were not the same as those used in the original SBD battery (Fleishman, Harris and Burtt, 1957). The items on the Army survey consisted of several SBD Questionnaire items, several items from the Leader Behavior Description Questionnaire Form XII (Stogdill, 1963) and items designed to measure other aspects considered to be important principals for leadership in the Army (e.g. communication with subordinates, setting a good example).

The analyses were conducted to determine whether or not consideration and Structure type dimensions did emerge, to define any new dimensions of importance to leadership in the Army, and enable discussion of results of

the survey in terms of a workable number of conceptual dimensions rather than 43 individual items. A discussion of these factor analyses is presented in the Results.

## V. RESULTS

### DEMOGRAPHIC ANALYSES

#### The Sample

The sample of respondents to this survey questionnaire consisted of approximately 30,000 Army personnel ranging in grade from E1 to O8 and higher. The survey was administered during 1971. For the purpose of the present analyses, the warrant officer and general officer data were omitted and other incomplete data were removed. Only the data of respondents from the grades E1 through E0 and O1 through O6 were used. For this set of data, the resulting sample size was 28,162. The relevant background and demographic characteristics to describe the sample are presented below. The respondents' age is shown for each ratee category (subordinate, self, superordinate) in Table 1.

As Table 1 indicates, almost half of the sample (12,379) was under 29 years of age. An almost equal number of respondents (13,480) were between 29 and 45 years of age.

Table 1

NUMBER OF RESPONDENTS BY AGE GROUP AND RATEE CATEGORY

Ratee Category	Age of Respondent (years)						Totals
	17-21	22-28	29-35	36-45	over 45	no response	
Rated their Subordinate	220	3004	1811	2584	771	16	8406
Rated Themselves	429	3665	1990	2823	816	24	9747
Rated their Superordinate	975	4086	1857	2415	652	24	10009
Totals	1624	10755	5658	7822	2239	64	28162

Ratings of subordinates, self, and superordinates were roughly equal (8406, 9747, 10,009 respectively) with somewhat more ratings of superordinates. The respondents' race (white, non-white) by ratee category is shown in Table 2. The respondents' grade by ratee category is shown in Table 3.

Table 2

RACE (WHITE, NON-WHITE) BY RATEE CATEGORY

Ratee Category	Race of Respondent		Totals
	White	Non-White	
Rated their Subordinate	7140	1266	8406
Rated Themselves	8292	1455	9747
Rated their Superordinate	8440	1569	10009
Totals	23872	4290	28162

Table 3

GRADE BY RATEE CATEGORY

Ratee Category	Grade of Respondent					Totals
	E1-E4	E5-E6	E7-E9	01-03	04-06	
Rated their Subordinate	82	2056	2323	2191	1754	8406
Rated Themselves	163	2881	2464	2311	1928	9747
Rated their Superordinate	1352	2648	2205	2221	1583	10009
Totals	1597	7585	6992	6723	5265	28162

### The Survey Instrument

The survey instrument consisted of 43 behavior items, each to be rated on three (3) response scales ("Do", "Should", and "Importance"). In addition there were items dealing with overall performance as well as items of biographic and demographic characteristics.

In rating the individual in question (either a superordinate, himself, or a subordinate) on the 43 behaviors, a rating was made of the extent to which the ratee does perform the behavior ("Do" scale), how often the ratee should perform the behavior ("Should" scale), and how important this behavior is to the rater ("Importance" scale). In each instance, the favorable or high importance end of the scale was assigned a value of seven (7), while the unfavorable or low importance end of the scale was assigned a value of one (1).

### Ratings of Superordinates

Mean ratings of respondents rating their superordinate were examined by rater's race (white-non-white), age (17-21, 22-28, over 28), education (non-high school graduate, high school graduate, education beyond high school level), and unit location (training, CONUS, EUROPE, other, TOE, non-TOE). Mean ratings were computed for each of the above rater groups on the "Do", "Should", and "Importance" scales as well as the two overall performance items (44 and 45). The greatest differences were found among the age levels of the raters. Table 4 shows the mean ratings by age group for those items where the greatest differences occurred in ratings of superordinates on the "Do" scale. In every instance, the older respondents rated their superordinate as performing the particular behavior at a more favorable level than did the younger respondents. Of these items, all but two (28, 43) are favorably worded and a higher rating indicates that the ratee performed the behavior more often.

On items 28 and 43, the higher rating indicates that the behavior was performed less frequently. The higher rating is therefore always a more favorable rating. It should be noted that age of respondent and grade of respondent are closely related. The differences shown in Table 4 may therefore be differences in grade rather than age. As a result, the superordinate being rated may also be of higher rank for the older respondents than for the younger.

Mean ratings by age group for ratings of superordinates on the "Should" scale are shown in Table 5 for those items where the greatest differences occurred. With the exception of item 18, the differences are similar to those shown in Table 4 for ratings on the "Do" scale. The older respondents indicated that the selected behaviors should occur more for

Table 4

MEAN RESPONSE BY AGE OF RESPONDENT FOR RESPONSES ON "DO" SCALE  
RATING THEIR SUPERORDINATE

ITEM	Age of Respondent (years)		
	17-21	22-28	over 28
	$\bar{X}$	$\bar{X}$	$\bar{X}$
4	4.57	4.92	5.52
19	4.29	4.52	5.16
20	4.52	4.91	5.48
24	4.34	4.74	5.51
25	4.49	4.79	5.45
28	4.69	5.19	5.73
29	4.51	4.90	5.69
34	4.65	5.12	5.70
40	4.70	5.27	5.98
43	4.64	5.06	5.70

Table 5

MEAN RESPONSE BY AGE OF RESPONDENT FOR RESPONSES ON "SHOULD" SCALE  
RATING THEIR SUPERORDINATE

ITEM	Age of Respondent (years)		
	17-21	22-28	over 28
	$\bar{X}$	$\bar{X}$	$\bar{X}$
18	5.79	5.15	4.79
37	5.59	5.98	6.55
40	5.80	6.26	6.72
43	5.14	5.56	6.03



item 40, less for items 37 and 43, than indicated by younger respondents. However, the differences for item 18 indicate the reverse - older respondents indicate the behavior should occur less frequently than indicated by young respondents.

The mean "Importance" ratings of superordinates by rater age are shown in Table 6 for items where the largest differences occurred. In every instance the older respondents indicated that the behavior in question was more important or critical than did the younger respondents. This trend was indicated in 42 of the 43 behavior ratings of "Importance". In other words, on all but item 18, the mean importance rating made by the older respondents was higher (more critical or important) than that made by the younger respondents. The fact that this also occurs to a great extent for ratings on the "Do" and "Should" scales poses the possibility that the differences in mean ratings among age groups is caused primarily by differences in response set - a greater "halo" effect from older raters than from younger ones. This could be the result of higher ranking superordinates as ratees, or simply a more generous rating (higher numerical value) from older respondents.

Table 7 shows the mean ratings of superordinates' overall performance for each age group of raters. Again, as in ratings on the "Do", "Should" and "Importance" scales for the 43 behaviors, older raters gave their superordinates higher ratings on overall performance than did the younger raters. The possibility of a greater "halo" effect (giving elevated ratings at all levels of performance) is evident for older raters than for younger raters.

Only a few differences of small magnitude were found among mean ratings

Table 6

MEAN RESPONSE BY AGE OF RESPONDENT FOR RESPONSES ON "IMPORTANCE" SCALE  
RATING THEIR SUPERORDINATE

ITEM	Age of Respondent (years)		
	17-21	22-28	over 28
	$\bar{X}$	$\bar{X}$	$\bar{X}$
6	4.76	5.31	5.65
9	4.88	5.29	5.59
10	5.20	5.85	6.20
12	5.38	5.79	6.16
13	4.93	5.52	5.79
25	4.04	4.51	4.99
26	5.13	5.65	5.88
33	5.06	5.42	6.07
37	5.02	5.53	6.17
39	4.85	5.27	5.76
40	4.91	5.46	6.07
43	4.97	5.32	5.81

Table 7

MEAN RESPONSE BY AGE OF RESPONDENT FOR RESPONSES ON "PERFORMANCE" SCALE  
RATING THEIR SUPERORDINATE

ITEM	Age of Respondent (years)		
	17-21	22-28	over 28
	$\bar{X}$	$\bar{X}$	$\bar{X}$
44	4.78	4.93	5.46
45	4.62	4.74	5.34

of raters differing in race, education, and unit location. In almost every instance, where differences in mean ratings occurred, they were .50 points or less in the magnitude of the difference between highest and lowest mean ratings. For this reason, these statistics are not presented.

### Ratings of Self

For those respondents who rated their own behavior, mean ratings were computed only for responses to the "Do" scale on the 43 behavior items. In addition mean ratings on the overall performance items (44,45) were computed. Again, the major focus of differences in mean ratings of the raters own performance on the "Do" scale was in the age of the raters. These means are presented in Table 8 for selected items by age group of the respondent. In virtually every instance, including those items not presented in Table 8, the older respondents rated their own behavior more favorably on the "Do" scale than did younger respondents. Among those items presented in Table 8, all but one (item 38) showed that oldest respondent group rated their behavior between a mean of 5.82 and 6.36 while the youngest age group rated their behavior between a mean of 4.63 and 5.42. The possibility of a general "halo" effect or response bias difference is again indicated as a major factor in the observed differences between age groups of raters. The mean ratings of overall performance for respondents of different age groups are shown in Table 9. Again, the younger raters have a lower mean rating than do older raters.

Table 8

MEAN RESPONSE BY AGE OF RESPONDENT FOR RESPONSES ON "DO" SCALE

RATING THEMSELVES

ITEM	Age of Respondent (years)		
	17-21	22-28	over 28
	$\bar{X}$	$\bar{X}$	$\bar{X}$
1	5.20	5.70	6.19
3	4.95	5.30	6.12
6	5.04	5.67	6.24
9	4.71	5.28	5.93
10	5.42	5.90	6.36
13	4.98	5.43	5.82
14	4.92	5.59	6.04
24	5.14	5.61	6.06
25	4.88	5.39	6.00
29	5.16	5.62	6.25
34	5.08	5.57	5.92
37	4.86	5.28	6.13
38	3.41	4.32	4.40
40	4.90	5.64	6.33
43	4.63	5.16	5.95

Table 9

MEAN RESPONSE BY AGE OF RESPONDENT FOR RESPONSES ON "PERFORMANCE" SCALE  
RATING THEMSELVES

ITEM	Age of Respondent (years)		
	17-21	22-28	Over 28
	$\bar{X}$	$\bar{X}$	$\bar{X}$
44	4.67	5.02	5.46
45	4.68	5.05	5.57

### Ratings of Subordinates

Mean ratings on the "Do" scale were computed for raters of different age groups rating their subordinates. Mean ratings of overall performance (items 44, 45) were also computed for these rater groups. The resulting mean ratings on the "Do" scale are presented in Table 10 for raters of different age groups on those items where the greatest differences occurred. The relationship between rater age and mean rating found for superordinate and self ratings was again confirmed for subordinate ratings. Older raters rated their subordinates more favorably than did young raters. This relationship was found in 42 of the 43 behavior ratings for subordinates on the "Do" scale.

Mean ratings of overall performance of subordinates by age group are shown in Table 11. On both performance items, the older raters showed a higher mean rating of subordinate's performance than did the younger raters. This finding is consistent with results of superordinate and self ratings of performance.

Differences in mean ratings of subordinates on the "Do" scale by race, education, or unit location of rater were of much less magnitude than those found between age groups. These means are therefore not presented.

Table 10

MEAN RESPONSE BY AGE OF RESPONDENT FOR RESPONSES ON THE "DO" SCALE  
RATING THEIR SUBORDINATES

ITEM	Age of Respondents (years)		
	17-21	22-28	over 28
3	4.49	4.96	5.38
4	4.63	5.02	5.39
7	4.83	5.24	5.61
9	4.23	4.56	5.03
14	4.74	5.26	5.53
24	4.28	4.91	5.42
29	4.45	4.80	5.40
39	5.22	6.14	6.18
40	4.54	5.06	5.63
43	4.40	4.84	5.23

Table 11

MEAN RESPONSE BY AGE OF RESPONDENT FOR RESPONSES ON THE "PERFORMANCE" SCALE  
RATING THEIR SUBORDINATES

ITEM	Age of Respondents (years)		
	17-21	22-28	over 28
44	4.76	5.09	5.29
45	4.50	4.97	5.19



### Discussion of Ratings

Several interpretations of the consistent relationship of rater age and mean rating are possible. These differences may represent true differences in the perception of another's performance or behavior in that younger personnel may be more demanding in terms of their expectations and evaluation of another's performance. The younger individual may be more idealistic in his view of what constitutes good leadership on the part of his subordinates, himself and his superordinates. Whereas the older personnel may be more "seasoned" and somewhat less demanding in their expectations.

An alternative interpretation of the relationship between rater age and rating focuses on the possibility that older raters show somewhat more favoritism in their ratings. This is especially plausible in light of the fact that the age of the rater is closely related to the age, and therefore grade, of the person being rated. Generally speaking older raters were rating the behaviors of higher ranking personnel whether subordinate, self, or superordinate. For this reason it is quite possible that more favoritism from older raters reflects more favoritism in rating higher ranking individuals. If this is the case, standardizing the ratings within each age category of rater will eliminate some of this apparent difference.

A third interpretation of the age/rating relationship is that higher ranking personnel actually perform more favorably than lower ranking personnel. Hence, where older raters are involved, they are rating higher ranking personnel and the higher ratings reflect the more favorable performance and behavior of higher ranking personnel.

However, this explanation does not clearly explain the differences found on the "Should" and "Importance" ratings since these reflect rater expectations rather than rated behavior. Although it is plausible that better

performance from higher ranking others may instill higher expectations in the raters.

In examining the overall magnitude of the mean ratings it is apparant that nearly all mean ratings are on the favorable or important side of the response scales. This indicates a general tendency to utilize the more favorable ratings (higher numerical values) in describing behaviors and expectations. This, in turn, indicates either a general positive bias on the part of raters or genuinely favorable performance and behavior on the part of the military personnel being rated. If it is indeed a positive bias on the part of raters, standardizing the responses or constructing a response scale which corrects for this bias would reduce the occurrence of high numerical values in the mean ratings.

## FACTOR ANALYSES

Factor analyses were performed on data drawn from the Emerson Board survey. The questionnaire for this survey included items taken from the Leadership Behavior Description Questionnaire (LBDQ), items which reflected the LBDQ inclusions - but were somewhat altered, and items composed specifically for the Emerson Board survey. The resulting battery of items reflected item-clusters relating to the major dimensions of leadership found in the Ohio State studies: Consideration and Structure. However, a preliminary examination of the Emerson Board questionnaire showed that the proportional inclusion of items related to the consideration and structure dimensions was heavily weighted toward consideration. It was found that twelve of the forty-three items could be directly referred to the LBDQ battery as consideration items. Five items were identified as similar to consideration items found in the LBDQ. Six of the Emerson Board questionnaire items were exactly derived from the LBDQ as structure items. Another one item was determined to be similar to a structure item in the LBDQ. The remaining items were new entries having no direct relation to the original LBDQ battery.

At the outset, a decision was made to perform factor analyses on twelve subsets of data from the survey. These subsets were generated by categorizing data according to the "Do" and "Should" reporting of respondents, ratee classification (superordinate, subordinate, self), and whether the respondent was an enlisted man or an officer. This break-out was conceived as appropriate in respect to assessing comparability of resulting factors for officers and enlisted men and according to whether descriptions of them were in terms of superordinate, subordinate, or self status.

### Description of Factor Dimensions

The results of the factor analyses indicated a set of six factors emerging across all sub-groups of the sample. These dimensions, and their descriptions, are as follows:

#### Professionalism

Denotes technical competence, high standards, a positive approach to attaining objectives and the ability to make fresh approaches to problems. Also indicates an awareness of others' capabilities and the quality of being considerate of their needs.

#### Authoritarianism

This dimension refers to behavioral traits which are inhibiting and negative. It denotes resistance to change, selfishness, exaggerated ambition, corrosive criticism, impersonality and insensitive demands. It also refers to suppression of initiative.

#### Consideration: task-oriented

This dimension is characterized by concern for maintaining good communication, support for others, sharing decision-making, rewarding good performance and maintaining high performance. It stresses the context of consideration in task-attainment.

#### Consideration: need-oriented

Denotes concern for morale, flexible discipline, and setting an example for subordinates. May include counseling as a related characteristic. Emphasized the needs of others rather than goal-accomplishment.

#### Social Support

This dimension refers specifically to communication, support, and morale as significant traits. Emphasizes the climate of leadership through communication and support for personnel.

#### Facilitator

Characterized by definition of expectations, reinforcement of subordinates, being flexible, taking the initiative and developing subordinates. This dimension emphasizes goal-attainment through definition, reinforcement, and development.

The above factors define the structure of dimensions emerging from the set of factor analyses discussed above. It should be noted that a pronounced

theme of consideration can be ascertained in all of the identified factors. In fact, the point of view can be adopted that all the factors are consideration factors containing certain elements of structure. This perspective is consistent with the nature of the Emerson Board questionnaire, which is heavily weighted toward consideration. Despite this, it is significant to point out that the factors listed above emerged as relatively strong factors with clearly delineated dimensional qualities. It appears that what has occurred is that the factor analyses have evidenced a set of consideration factors of potentially high research interest.

#### Factor Representation Among Ratee Categories

As stated, the six factors appeared at some point in the "Do-Should" dichotomy across all categories of ratee. Table 12 illustrates the factor representation in ratee categories for each of the six factors.

Table 12

## FACTOR REPRESENTATIONS IN RATEE CATEGORIES

DO	Professionalism	Authoritarianism	Consideration: Task	Consideration: Need	Social Support	Facilitator
Superior Officer	Yes	No	Yes	No	Yes	No
Self Officer	Yes	Yes	Yes	Yes	No	Yes
Subordinate Officer	Yes	Yes	No	No	Yes	No
Superior Enlisted	Yes	Yes	No	No	Yes	No
Self Enlisted	Yes	Yes	Yes	Yes	No	Yes
Subordinate Enlisted	Yes	Yes	Yes	No	Yes	No
SHOULD	Professionalism	Authoritarianism	Consideration: Task	Consideration: Need	Social Support	Facilitator
Superior Officer	Yes	Yes	Yes	No	Yes	Yes
Self Officer	Yes	Yes	Yes	Yes	No	Yes
Subordinate Officer	Yes	Yes	Yes	No	Yes	Yes
Superior Enlisted	Yes	Yes	Yes	No	Yes	No
Self Enlisted	Yes	Yes	Yes	Yes	No	Yes
Subordinate Enlisted	Yes	Yes	Yes	No	Yes	Yes

Table 12 shows that the factors Professionalism and Authoritarianism are most consistently represented among ratee categories. Each factor has emerged for all categories of ratee, with the exception of the absence of the Authoritarian factor for superordinate officers rated on what they do. The next factor in sequence of representation is the Consideration: task-oriented dimension. This factor emerged in all categories excepting subordinate officers and superordinate enlisted men rated on what they do. Social Support is the next factor in overall representativeness, appearing in eight of the twelve categories. It is noteworthy that Social Support did not emerge in the self-rating categories for both enlisted men and officers. The following factor in sequence is the Facilitator dimension. Facilitation appears in seven of the twelve categories. For the "Do" break-out, it appears only in the self-ratings for officers and enlisted men. In the "Should" break-out, Facilitation is represented for each ratee category of officer and two of the ratee categories of enlisted men. It is not evidenced in the category of superordinate enlisted men rated on what they should do.

The above factor representation matrix points to some preliminary hypotheses of potential interest for further study. For example, among officers and enlisted men rated on what they do, both the need-oriented consideration and facilitator factors appear only in the self-rating categories. It can be hypothesized that the behaviors reflected by these dimensions are of greater concern to these groups than to either superordinates or subordinates. If further research were to confirm this hypothesis, a definition of reasons for this concern would be of pragmatic interest. Another hypothesis implied by the matrix is that Social Support is not a

dimension of high concern for officers and enlisted men rating themselves. The perceptual importance of these dimensions might accrue to superordinate and subordinate categories. In all events, future research should consider these results for comparability. If they are highly similar, an extended examination for cause may be justified.

#### Comparison of Factors Between Officers and Enlisted Men

Tables A-1, A-2 and A-3 in Appendix A illustrate the factors and factor-loadings for officers and enlisted men rated on what they do, by rating category (superordinate, self, subordinate). These tables compare the similarity of factors for each group, matched by rating category.

##### Superordinate Officers and Enlisted Men:

Three factors were identified in the superordinate officer category: professionalism, consideration: task-oriented, and social support. The superordinate enlisted category also generated three factors: professionalism, authoritarianism, and social support. Of interest here is that the two groups varied on one factor, the other two being identical. This variance is partially explained by the fact that those items loading on the authoritarian dimension in the enlisted category, fall into the consideration factor for officers.

##### Self-rated Officers and Enlisted Men:

Five identical factors for each group appeared in the analysis. The items and item-loadings for these factors were highly similar in cross-comparison.



#### Subordinate Officers and Enlisted Men:

Three factors emerged for the officer category: professionalism, authoritarianism, and social support. The enlisted men category generated five factors: professionalism, authoritarianism, social support, consideration: task-oriented, and facilitation. It appears that the officer category picked up items referring to consideration (identified as a distinct factor in the EM group) on the professionalism factor. Otherwise, the facilitation dimension is absent in the officer category.

Although certain of the factors do not emerge in some of the categories, there is a general factor similarity between officers and enlisted men apparent in the tables. Further research should consider the application of scaled dimensions to precisely define differences between officers and enlisted personnel in regard to their ratings of items associated with these dimensions, e.g. mean-score comparisons on professionalism between the two groups and their respective sub-categories.

#### Modification and Refinement of the Emerson Board Questionnaire

A basic requirement of this research is to propose empirically-grounded recommendations for revising the Emerson Board questionnaire. This task was accomplished by a three-step procedure pertaining to the factor analyses. The procedure involved: (1) An examination of factor representation across ratee categories (Table 12); (2) An analysis of items loading on two or more factors, simultaneously (Table 13); and (3) An analysis of items loading consistently on the same factors (Table 14). The results of this procedure are discussed below in relation to the above steps.

### Step One: Factor Representation

As indicated earlier (see Table 12), the factor analyses resulted in the identification of six factors, or dimensions of leadership. These factors are generally consistent in their representation across categories. Lowest factor representation occurred in the social support, facilitation, and need consideration factors. While these dimensions become potential candidates for exclusion in a revised questionnaire, at this time it seems beneficial to retain them - both because their absolute (rather than comparative) representation is interesting and the nature of the dimensions they represent is potentially significant. The Step One examination, therefore, recommends no factor exclusions.

### Step Two: Cross-factor Item Loadings

Table 13, shows nine items in the "Do" category that load on more than one factor. In the "Should" category there are twelve items that load on more than one factor. To eliminate this cross-factor item duplication, items were assigned to those factors on which the items showed highest loadings. This step, therefore, enabled item-reduction for purposes of analysis on certain factors through elimination of duplication.

### Step Three: Items Loading Consistently on the Same Factors

In Table 14, those items which consistently appear on each of the six factors are indicated. The criterion for item-retention was determined to be those items appearing in a majority of the sub-populations with which their respective factors were associated. For example, in the "Do" category

Table 13

ITEMS LOADING ON TWO OR MORE  
FACTORS BY RATEE CATEGORY

DO	Profession- alism	Authoritar- ianism	Considera- tion: Task	Considera- tion: Need	Social Support	Facilitator
Superior Officer	15 19		15 19 34		34	
Self Officer	10	26	29	10 26 29		
Subordinate Officer	29				29	
Superior Enlisted	15 19				15 19	
Self Enlisted						
Subordinate Enlisted	17		17			
SHOULD	Profession- alism	Authoritar- ianism	Considera- tion: Task	Considera- tion: Need	Social Support	Facilitator
Superior Officer						
Self Officer						
Subordinate Officer	25 29				29	25
Superior Enlisted						
Self Enlisted						
Subordinate Enlisted	13,15 5,16 6,7,8		4,35 13,15 16,34		34,35	4 5,7,8 6

Table 14  
Items Loading Consistently  
On the Same Factors Across Ratee  
Categories

DO	Profession- alism	Authoritar- ianism	Considera- tion Task	Considera- tion Need	Social Support	Facilitator
Superior Officer	7, 8, 10 11, 12		4, 15, 17 19, 20, 34		29, 31, 34 35	
Self Officer	7, 8, 10 11, 12	26, 28, 30 32, 39, 42	15, 19, 20 22, 24, 29 34	26, 29		1, 2, 5, 6
Subordinate Officer	7, 8, 10 11, 12	23,26,28,30 32,33,39,42			29, 34, 35	
Superior Enlisted	8, 10, 11 12	23,26,28,30 32,33,39,42	4		29,31,34,35	
Self Enlisted	7, 8, 10 11, 12	23, 26, 28, 42	15,16,17,19 20,21,22,24 27,29	26, 29		1,2,3,5,6
Subordinate Enlisted	7, 8, 10 11, 12	23, 26, 28 30, 32, 33 42	15,16,17,19 20,21,24,27		29, 31, 34 35	1, 3
SHOULD	Profession- alism	Authoritar- ianism	Considera- tion Task	Considera- tion Need	Social Support	Facilitator
Superior Officer	9, 10, 11 12, 13, 14 16	23, 26, 28 30, 32, 33 39, 42, 43	4, 7, 8, 15 19, 20, 24		29, 31, 34 35	1, 2, 3, 4
Self Officer	10, 11, 12	26, 28, 30 32, 42	14, 15, 17 19, 34, 35	24, 25, 27 29, 37, 40		1, 2, 3, 4 5, 6
Subordinate Officer	9,10,11,12 13,14,15,16	26, 32, 33 39, 42, 43	4, 7, 8, 17 19, 20, 24		29, 31, 34 35	1, 2, 3, 4
Superior Enlisted	9,10,11,12 13,14,15,16	23, 26, 33 39, 42, 43	14,15,17,19 20, 34, 35		29, 31, 34 35	
Self Enlisted	10, 11, 12	26, 33, 39 42, 43	14,15,17,19 20, 34, 35	24, 25, 27 29, 37, 40		1, 2, 3, 4 5, 6
Subordinate Enlisted	10, 11, 12 13, 15, 16	26, 33, 39 42, 43	4, 14, 15 19, 20, 24 34, 35		29, 31, 34 35	1, 2, 3, 4 5, 6

items loading on social support were identified in four sub-populations: superordinate officers, subordinate officers, superordinate enlisted, and subordinate enlisted. Applying the criterion stated above, only items appearing in at least three of the four sub-populations are considered for retention. This step was implemented in the prescribed fashion for each factor identified.

The result of this three-step procedure was the identification of candidate items for retention in a revised questionnaire, for both "Do" and "Should" categories. These items are presented in Table 15.

Table 15 shows that there are twenty-nine candidate items for the "Do" category out of the total battery of forty-three items. By including the "Should" category, the candidate item-list is increased to thirty-six items out of forty-three. To avoid misinterpretation of these figures, it should be emphasized that they represent an item-pool to be considered for inclusion in a revised questionnaire. It is likely that the identified factors can be measured using fewer items than exist in this group. Of course, final determination of this is the province of additional research and questionnaire pretesting.

Table 15

Candidate Items for Retention In  
Revised Questionnaire\*

DO	Profession- alism	Authoritar- ianism	Considera- tion: Task	Considera- tion: Need	Social Support	Facilitator
	7	23	15	29	29	1
	8	26	17	37	31	2
	10	28	19	40	34	3
	11	30	20		35	5
	12	32	24			6
		42	27			
SHOULD	Profession- alism	Authoritar- ianism	Considera- tion: Task	Considera- tion: Need	Social Support	Facilitator
	10	23	14	24	29	1
	11	26	15	25	31	2
	12	28	17	27	34	3
	13	30	19	29	35	4
	16	32	20	37		5
		33	24	40		6
		39				
		42				
		43				

\*Based on:

- 1) Factor Representation Matrix
- 2) Elimination of cross-factor duplication
- 3) Items loading consistently on same factors

## CORRELATION/REGRESSION ANALYSES

### Relationship of DO, SHOULD, IMPORTANCE Scales

One approach to making the questionnaire more efficient was to determine whether or not it is necessary to elicit all three DO, SHOULD and IMPORTANCE responses to each item. The question is can the respondents differentiate between the meanings of the three responses to provide empirically unique information about leader behavior. To test this question the item means for DO, SHOULD and IMPORTANCE scores were computed on the data rating superiors, and the item means were correlated (See Figure 2.)

	<u>DO</u>	<u>SHOULD</u>
DO	--	--
SHOULD	0.83	--
IMPORTANCE	0.61	0.81

Fig. 2 Correlations between the three response categories for Army-wide survey. For all correlations  $p < .001$ .

The correlation between the DO and the SHOULD scores was .83. The average difference between the DO and SHOULD scores was .66. This indicates that the group rated their superiors as DOING what they SHOULD be doing, with very little differences between the two.

The difference indicates that the leaders could be doing more than they are; the high correlation indicates that there is no great benefit in collecting both DO and SHOULD scores.\* The IMPORTANCE data are likewise significantly correlated with the DO scores for each item ( $r = .61$ ).

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\*The sample linear equations to predict SHOULD and IMPORTANCE scores from the DO scores were also computed. The statistics for these regressions are found in Appendix C.

	<u>DO</u>	<u>SHOULD</u>
DO	--	
SHOULD	0.76	--
IMPORTANCE	0.50	0.74

Fig. 3. Correlations between the three response categories for the survey of 1800 personnel in Army school system. For all correlations  $p < .001$ .

On a check on the reliability of these correlations, the same procedures were carried out on the data reported in Leadership in the 1970's (1971). The correlational pattern using these data (see Figure 3) is very similar to that presented in Figure 2. High correlation (.76) exists between the SHOULD and DO scales; a similarly high correlation exists between SHOULD and IMPORTANCE; and a slightly lower but still significant correlation of .50 was found between DO and IMPORTANCE. Note also that in both cases better than half the variance in the SHOULD data is accounted for by the DO data.\*

\*The accounted for variance is determined by  $r^2$  value, i.e., .688 for the data in Figure 2 and .577 for Figure 3.



### Implications of DO, SHOULD, IMPORTANCE Correlations

The high correlations between the three response categories bring into doubt the utility of using this response typology. There is some other evidence\* that this typology, although intuitively interesting, fails to pick up the theoretical differences implied by the three categories.

The reasons for the high correlation can only be conjectured. The subject is presented with several problems. First, he must judge how often a leadership behavior is exhibited. Then he must rate how often the behavior SHOULD be performed realizing that any difference between the DO rating and the SHOULD rating reflects on the leadership ability of the individual being rated. Another problem is present in requiring distinctions between those activities which SHOULD be done and those which are important. Although many hypothetical examples can be offered to show the distinction between SHOULD and IMPORTANCE, the empirical evidence indicates that those things a leader SHOULD do, have highest IMPORTANCE.

The general reasoning for including SHOULD scores is to empirically define an ideal level of leader behavior against which to measure the actual performances of these behaviors. Some alternative procedures for accomplishing this have been used. Beer (1966) used the LBDQ to define the ideal leader. Using this instrument, difference scores can be computed based on leader dimensions rather than individual items. A second technique was used by Reaser (1972) in which a preferred leader was selected and described on

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\*Hill and Hunt (1971) discarded the IMPORTANCE data due to high correlation with SHOULD scores of perceived organization status needs.

a number of leader dimensions of the LBDQ Form XII. The advantage of this later procedure is that it enables the rater to rate the actual behavior of a preferred leader rather than requiring him to construct a hypothetical ideal.

Given that the SHOULD and IMPORTANCE data are highly redundant with the DO ratings, some alternative approach to establishing a criterion of leader behavior like those cited above should be entertained.

## VI. DISCUSSION

### Findings From the Questionnaire

#### 1. Inefficiency of the DO, SHOULD, IMPORTANCE Response Paradigm

Emphasis should be placed on the DO scores. There are several reasons for this. First, the actual behavior of the leader is the primary research concern. Second, the value or importance of a behavior is measured better by evaluating its results than by gathering the opinions of others. Third, the DO scores are sufficient to provide the essential information about the status of leadership in the Army.

In future research it is recommended that some alternative procedure be used to determine ideal or preferred leadership behavior. Specific alternatives were discussed in the results section of this report.

#### 2. The Revision and Modification of the Survey Questionnaire

One of the primary goals of this research was to determine a means by which the original questionnaire could be revised for future application. The intent of this goal was to ascertain which items, if any, could be deleted to generate a more economic, yet powerful, research instrument. To attain this end, a factor analytic procedure was applied to the survey data in order to derive and identify those dimensions of leadership tested by the instrument and to determine those items which consistently loaded on these dimensions.

The factor analysis yielded six dimensions of leadership, as follows:

- Professionalism
- Authoritarianism
- Task-oriented Consideration

- Need-oriented Consideration
- Social Support
- Facilitation

Following identification of the leadership dimensions, an examination of survey items was made to determine: (1) items which were redundantly appearing on more than one dimension; and, (2) items loading consistently on the same dimensions. In addition, the dimensions were examined to determine the pattern of their appearance in the major categories (DO, SHOULD) and sub-groups (superordinate, self, subordinate) of the sample.

The result of these exercises was an item-pool representing the six dimensions of leadership. As it happened, this item-pool reflects a significant reduction in number from the original battery of items.

It is recommended that future surveys of leadership, based on the original studies, retain only those items defined by this analysis (with exception of additional items from the Ohio State Battery). Indeed, further research in questionnaire development and testing would probably reflect an additional reduction of items, yielding a set of scaled items which test the dimensions of leadership specified above.

#### Findings Regarding Status of Leadership in the Army

##### 1. Demographic Analyses

For DO, SHOULD, and IMPORTANCE scales, a consistent relationship was found between rater age and ratings. On nearly every item, the youngest age group of raters (17-21 years of age) gave the lowest ratings while the middle group (22-28 years of age) gave somewhat higher ratings and the oldest group (over 28 years of age) gave even higher ratings. This

was found on the overall and combat performance items as well. This age difference could be the result of a more idealistic view of good leadership by younger personnel and hence a more critical appraisal of individuals including themselves. However, since the rater's age is so highly related to his rank and the rank of his superordinates and subordinates, it is possible that the age differences reflect true differences in the performance of the rater's superordinates and subordinates. Because of the relationship between age and rank, standardized scores could be generated within age groups and the results would be essentially the same as standardizing within rank groups.

Other demographic variables (e.g., race, education, unit type/location) did not exhibit the consistent differences found among age groups. In fact, unit type/location categories demonstrated notable consistency in their ratings of others.

For all rater groups on all scales, the ratings were conspicuously biased toward the favorable or high end of the scale. The standardization of scores within age groups would also correct for this bias. However, in comparing data on subsequent administrations, the means based upon raw data could be used for assessing overall trends relative to previous administrations of the instrument.

## 2. Implications of the Factor Analyses

Several points should be made regarding the factor analyses. First, the dimensions found by other researchers have included those identified in this research, with one exception: the Professionalism dimension. This dimension appears to be unique, combining aspects of consideration, task orientation, and something like military bearing. This dimension may indeed

be unique to military organizations where position, role and tradition compose a more significant aspect of organizational functioning than in the civilian world.

A second point is that the several dimensions identified here have a "consideration" flavor. Elements of the Ohio State structure factor were usually broken out over a number of dimensions. The point is that if comparisons are to be made with prior findings, and with the civilian community, it is essential that consideration and structure scales used on other populations be included in the revised survey questionnaire. Although the dimensions found here are of real interest, contrasts with prior findings are difficult because of the unique item set and resulting dimensions derived from these data.

A third point follows from the second. The original consideration and structure dimensions were derived from a battery of several hundred items. Here, however, only forty-three items were used to construct up to six dimensions. It is essential that additional testing of these dimensions be conducted to determine their reliability and validity as dimensions and as theoretically meaningful aspects of leadership.

In this context, the leadership dimensions identified by this research compose a potentially significant set for further research. The probable benefits of additional research are enhanced by the fact of Armed Forces transition to All Volunteer Force status. This is particularly the case in respect to the implications of the Professionalism dimension. Other dimensions, such as Social Support and Facilitation, should be considered

in light of their consistent appearance in only selected sub-groups of the total sample, (e.g. the appearance of the Facilitation dimension among self-raters only).

Finally, it is interesting to note that one of the more salient dimensions emerging from the data was Authoritarianism. Historically, the phenomenon of authoritarianism has been an abiding concern to all enlightened military personnel. Future surveys should be particularly attuned to the scale-scores on this factor in order to assess its direction and magnitude among military Personnel.

#### Conclusions/Recommendations

The following conclusions and recommendations are indicated by the research.

1. Any readministration of the leadership survey should incorporate the findings of this research.
  - a. A modified questionnaire should be generated using items defining the dimensions found in the factor analyses.
  - b. Consideration should be given to deletion of the SHOULD and IMPORTANCE response categories.
  - c. The modified questionnaire should be expanded to include the Consideration and Structure scale items used in previous research (e.g., scales from the LEDQ Form XII).
2. In regards to the status of leadership in the Army:
  - a. More data is needed to refine the dimensions of leader behavior found in this study.
  - b. In further administrations of the survey consideration should be given to generating standardized response data with selected subgroups of the population (e.g., one of later).

- c. In order to gain a larger perspective on the status of leadership in the Army, future research should allow for comparisons with prior findings in the civilian community.

#### Additional Recommendations

There is one additional point which, although not a direct result of the analyses, should be made. The evaluation of the items and dimensions performed in this study were carried out in what might be described as a leadership vacuum; that is, the aspects of leadership were defined without being tied to any criterion measures. Granted the role of the leader is to ensure completion of both sides of the informal contract between the individual soldier and the Army as an organization. However, the overall goal of the leader is the completion of his mission and the value or propriety of any leadership behavior must be evaluated in terms of that mission. It is therefore recommended that future leadership studies include the collection of leader and unit performance. Such measures can be either those normally gathered by the Army or could consist of ratings of performance. Well defined, behaviorally anchored, rating scales have proven to be very useful in a number of studies in applied organizational settings.

If both ratings and other organizational indications of performance can be gathered, the procedure used by Bowers and Seashore (1966) can be applied. In that study a number of performance indicators were factor analyzed to define major aspects of group performance. The leadership data gathered was then used to predict the dimensions of performance. This provides one of the more rigorous ways to test the effectiveness of various leader behaviors.



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APPENDIX A

Factor Loadings on Leadership Dimensions  
for all Items

DO FACTOR LOADINGS COMPARING  
SUPERIOR OFFICER AND SUPERIOR ENLISTED PERSONNEL

Officer Superior -- DO						Enlisted Superior -- DO				
	I	II	III	IV	V	I	II	III	IV	V
1	.55					.54				
2		.47								
3	.57					.58				
4		.43								
5		.43								
6	.55					.53				
7		.61								
8	.56					.57				
9	.56					.63				
10	.77					.72				
11	.64					.65				
12	.67					.69				
13	.59					.55				
14	.50					.50				
15	.54	.45				.55		.45		
16	.59					.59				
17		.54								
18						.57				
19	.45	.40				.48		.49		
20		.43						.44		
21										
22	.52					.49				
23		.52							.51	
24	.44							.45		
25	.60					.52				
26		.65							.60	
27	.66					.51				
28		.63							.56	
29	.46		.53					.59		
30		.68							.60	
31	.42		.56					.58		
32		.63							.57	
33		.53							.51	
34		.40	.62					.64		
35			.57					.61		
36										
37	.66					.57				
38										
39		.69							.59	
40	.57					.73				
41										
42		.65							.63	
43	.50									

- I - Professionalism
- II - Consideration: Task
- III - Social Support
- IV - Authoritarianism
- V - Facilitator

DO FACTOR-LOADINGS COMPARING  
SUBORDINATE OFFICER AND SUBORDINATE ENLISTED PERSONNEL

Officer Subordinate -- DO						Enlisted Subordinate -- DO				
	I	II	III	IV	V	I	II	III	IV	V
1										.53
2										.52
3										
4			.43						.49	
5	.61					.50				
6	.60					.53				
7	.60					.47				
8	.62					.48				
9	.61								.53	
10	.69					.61				
11	.69					.59				
12	.73					.63				
13	.58								.42	
14	.61								.54	
15	.67								.65	
16	.69								.60	
17	.62					.43			.43	
18	.53								.52	
19	.52								.63	
20	.46								.59	
21									.45	
22	.52									
23		.51					.51			
24	.52								.68	
25	.51					.43				
26		.62					.60			
27	.53						.62		.56	
28		.61					.62			
29	.55		.42					.47		
30		.64					.64			
31	.52					.43		.52		
32		.64					.56			
33		.54					.51			
34			.60					.61		
35			.59					.61		
36										.58
37										.45
38										
39		.61								.49
40										
41										
42		.54					.50			
43		.40								.47

I - Professionalism  
 II - Authoritarianism  
 III - Social Support  
 IV - Consideration Task  
 V - Facilitator

DO FACTOR LOADINGS COMPARING  
Officer-EM Self Ratings

	Officer Self -- DO					Enlisted Self -- DO				
	I	II	III	IV	V	I	II	III	IV	V
1				.46					.58	
2				.51					.61	
3					.47				.54	
4				.51					.60	
5				.47					.50	
6				.53					.55	
7	.54					.53				
8	.41					.46				
9					.40					.40
10	.50				.48	.60				
11	.49					.59				
12	.54					.62				
13										
14			.43					.46		
15			.64					.62		
16								.57		
17	.41							.46		
18								.41		
19			.52					.59		
20			.45					.51		
21								.40		
22			.49					.55		
23							.41			
24			.41							.47
25					.62					.58
26		.51					.47			
27					.56					.61
28		.41					.41			
29			.42		.47					.54
30		.44								
31										
32		.50								
33										
34			.60					.47		
35			.55					.46		
36										
37					.63					.58
38										
39		.46								
40					.49					.58
41							.40			
42		.46					.44			
43					.44					

I - Professionalism  
II - Authoritarianism  
III - Consideration: Task  
IV - Facilitator  
V - Consideration: Need

DO/SHOULD FACTOR-LOADINGS BY ITEMS  
Self Enlisted

Enlisted Self -- DO					Enlisted Self -- SHOULD					
	I	II	III	IV	V	I	II	III	IV	V
1				.58					.64	
2				.61					.67	
3				.54					.61	
4				.60					.63	
5				.50					.50	
6				.55					.52	
7	.53					.57				
8	.46					.47				
9			.40							
10	.60					.68				
11	.59					.68				
12	.62					.69				
13										
14					.46					.47
15					.62					.63
16					.57					.63
17					.46					.46
18					.41					
19					.59					.56
20					.51					.49
21					.40					
22					.55					.53
23		.41								
24			.47					.51		
25			.58					.61		
26		.47					.43			
27			.61					.65		
28		.41								
29			.54					.50		
30										
31										
32										
33							.43			
34					.47					.44
35					.46					.44
36										
37			.58					.46		
38										
39							.48			
40			.58					.54		
41		.40								
42		.44					.43			
43							.42			

I - Professionalism  
 II - Authoritarianism  
 III - Consideration - Need  
 IV - Facilitator  
 V - Consideration - Task

DO/SHOULD FACTOR LOADINGS BY ITEMS  
Self Officer

	Officer Self -- DO					Officer Self -- SHOULD				
	I	II	III	IV	V	I	II	III	IV	V
1				.45					.56	
2				.51					.56	
3					.47				.46	
4				.51					.56	
5				.47					.48	
6				.53					.50	
7	.54					.56				
8	.41					.46				
9					.40					
10	.50				.48	.65				
11	.49					.67				
12	.54					.65				
13								.40		
14			.48					.46		
15			.64					.66		
16								.62		
17	.41							.46		
18										
19			.52					.47		
20			.45							
21										
22			.49					.45		
23										
24			.41							.45
25					.32					.60
26		.51					.47			
27					.56					.65
28		.41					.41			
29			.42		.47					.45
30		.44					.43			
31										
32		.50					.44			
33										
34			.60					.52		
35			.55					.53		
36										
37					.63					.43
38										
39		.46								
40					.40					.49
41										
42		.46					.41			
43					.44					

I - Professionalism  
II - Authoritarianism  
III - Consideration  
IV - Initiator  
V - Confidant



DO/SHOULD FACTOR-LOADINGS BY ITEMS  
Subordinate Officer Personnel

Officer Subordinate --- DO						Officer Subordinate -- SHOULD				
	I	II	III	IV	V	I	II	III	IV	V
1									.54	
2									.46	
3									.53	
4			.43						.57	
5	.61					.54				
6	.60					.55				
7	.60					.60				
8	.62					.56				
9	.61					.60				
10	.69					.78				
11	.69					.76				
12	.73					.79				
13	.58					.63				
14	.61					.61				
15	.67					.70				
16	.69					.74				
17	.62					.62				
18	.53									
19	.52					.46				
20	.46					.40				
21										.43
22	.52									.65
23		.51								
24	.52									.64
25	.51					.43				.57
26		.62					.44			
27	.53					.47				.66
28		.61								
29	.55		.42			.55		.60		
30		.64								
31	.52					.55		.52		
32		.64					.40			
33		.54					.51			
34			.60					.58		
35			.59					.72		
36										
37							.40			
38										
39		.61					.48			
40										
41										
42		.54					.40			
43		.40					.43			

I -- Professionalism  
II -- Authoritarianism  
III -- Social Support  
IV -- Facilitator  
V -- Motivational

DO/SHOULD FACTOR LOADINGS BY ITEMS  
Superior Enlisted Personnel

	Enlisted Superior -- DO					Enlisted Superior -- SHOULD				
	I	II	III	IV	V	I	II	III	IV	V
1	.54									
2										
3	.58									
4								.49		
5								.50		
6	.53									
7								.50		
8	.57							.51		
9	.63					.42				
10	.72					.59				
11	.65					.62				
12	.69					.65				
13	.55					.49				
14	.53					.50				
15	.55			.45		.61				
16	.59					.66				
17								.42		
18	.57							.42		
19	.48			.49				.49		
20				.44				.49		
21										
22	.49									
23		.51					.40			
24				.45				.43		
25	.52									
26		.60					.48			
27	.59									
28		.56								
29				.59					.70	
30		.60								
31				.58					.70	
32		.57								
33		.51					.44			
34				.64					.60	
35				.61					.72	
36										
37	.57									
38										
39		.59					.49			
40	.53									
41										
42		.63					.48			
43							.47			

- I - Professionalism
- II - Authoritarianism
- III - Consideration: Task
- IV - Social Support
- V - Facilitator

A-7

DO/SHOULD FACTOR LOADINGS BY ITEMS  
Superior Officer Personnel

Officer Superior - DO						Officer Superior - SHOULD				
	I	II	III	IV	V	I	II	III	IV	V
1	.55									.51
2		.47								.43
3	.57									.49
4		.43								.52
5		.43					.45			
6	.55									
7		.61					.43			
8	.56						.47			
9	.56					.41				
10	.77					.65				
11	.64					.61				
12	.67					.67				
13	.59					.54				
14	.50					.42				
15	.54	.45								
16	.59					.64				
17		.54					.45			
18							.40			
19	.45	.40					.45			
20		.43					.48			
21										
22	.52									
23		.52							.43	
24	.44						.41			
25	.60									
26		.65							.42	
27	.66									
28		.63								
29	.46		.53					.72		
30		.68							.40	
31	.42		.56					.70		
32		.63								
33		.53							.42	
34		.40	.62					.67		
35			.57					.76		
36										
37	.66									
38										
39		.69							.46	
40	.57									
41										
42		.65							.42	
43	-.50								.43	

- I - Professionalism
- II - Consideration: Task
- III - Social Support
- IV - Authoritarianism
- V - Facilitator

DO/DA/DA TACTIC LOADINGS BY TID 5  
Subordinate Enlisted Personnel

Enlisted Subordinate - 10						Enlisted Subordinate - SHOULD				
	I	II	III	IV	V	I	II	III	IV	V
1					.53			.40		.43
2										.57
3					.52			.56		.41
4			.40					.55		.46
5	.50					.40				.50
6	.53					.40				.46
7	.47					.46				.52
8	.48					.40				.51
9			.53					.60		
10	.61					.72				
11	.59					.73				
12	.63					.77				
13			.42			.66		.40		
14			.34					.62		
15			.63			.45		.63		
16			.60			.46		.64		
17	.43		.43			.52				
18			.52							
19			.63					.57		
20			.59					.41		
21			.45							
22								.66		
23		.51								
24			.68					.64		
25	.43					.40				
26		.60					.44			
27			.56					.62		
28		.62								
29				.47					.67	
30		.64								
31	.43			.52					.69	
32		.56								
33		.51					.42			
34				.61				.43	.57	
35				.61				.44	.66	
36										
37					.55					
38					.45					
39							.45			
40					.40			.49		
41										
42		.50					.43			
43					.37		.40			

- I - Professionalism
- II - Authoritarianism
- III - Consideration: Task
- IV - Social Support
- V - Facilitator

APPENDIX B

Items

ITEMS

28. He criticizes subordinates in front of others.
29. He is aware of the state of his Unit's morale and does all he can to make it high.
30. He is selfish.
31. He keeps me informed of the true situation, good and bad, under all circumstances.
32. He treats people in an impersonal manner - like cogs in a machine.
33. He distorts reports to make his Unit look better.
34. He backs up subordinates in their actions.
35. He communicates effectively with his subordinates.
36. He explains the reason for his actions to his subordinates.
37. He establishes and maintains a high level of discipline.
38. He draws a definite line between himself and his subordinates.
39. He is overly ambitious at the expense of his subordinates and his Unit.
40. He sets the example for his men on and off duty.
41. He fails to show an appreciation for priorities of work.
42. He demands results on time without considering the capabilities and welfare of his Unit.
43. He hesitates to take action in the absence of instructions.
44. How do you personally feel about the overall performance of the SUBORDINATE you have used as a reference in this study?
45. If you had been in a combat situation, how do you think you would have felt about the overall performance of this SUBORDINATE?

1. He lets the members of his Unit know what is expected of them.
2. He is easy to understand.
3. He trained and developed his subordinates.
4. He expresses appreciation when a subordinate does a good job.
5. He is willing to make changes in ways of doing things.
6. He takes appropriate action on his own.
7. He is thoughtful and considerate of others.
8. He offers new approaches to problems.
9. He counsels his subordinates.
10. He sets high standards of performance.
11. He is technically competent to perform his duties.
12. He approaches each task in a positive manner.
13. He constructively criticizes poor performance.
14. He assigns immediate subordinates to specific tasks.
15. He is willing to support his subordinates.
16. He knows his men and their capabilities.
17. He is approachable.
18. He gives detailed instructions on how the job should be done.
19. He stands up for his subordinates even though it makes him unpopular with his superior.
20. He lets subordinates share in decision making.
21. He criticizes a specific act rather than an individual.
22. He sees that subordinates have the materials they need to work with.
23. He resists changes in ways of doing things.
24. He rewards individuals for a job well done.
25. He seeks additional and more important responsibilities.
26. He makes it difficult for his subordinates to use initiative.
27. He sees to it that people under him work up to their capabilities.



APPENDIX C

Regression Statistics for Predicting  
SHOULD and IMPORTANCE Scores from DO Scores

# APPENDIX C

## REGRESSION STATISTICS FOR PREDICTING SHOULD AND IMPORTANCE SCORES FROM DO SCORES

Statistic	Computed Values*			Computation
	<u>S=f(D)</u>	<u>I=f(D)</u>	<u>I=f(S)</u>	
Slope of Regression line of Y on X	1.145	0.590	0.567	$b = \Sigma xy / \Sigma x^2$
The Y intercept of the Regression line of Y on X	-0.092	2.494	2.226	$a = \bar{Y} - b\bar{X}$
Explained Variation in Y	8.592	2.278	3.980	$\Sigma y_c^2 = b \Sigma xy$
Unexplained Variation in Y	3.778	3.796	2.094	$\Sigma y_s^2 = \Sigma y^2 - \Sigma y_c^2$
Error Variance of Y	0.088	0.088	0.049	$s_{y.x}^2 = (\Sigma y_s^2) / N$
Standard Error of Estimate of Y on X	0.296	0.297	0.221	$s_{y.x} = \sqrt{s_{y.x}^2}$
Unbiased Estimate of Error Variance of Y	0.092	0.092	0.051	$\hat{\sigma}_{y.x}^2 = (\Sigma y_s^2) / N-2$
Unbiased Standard Error of Estimate of Y on X	0.304	0.304	0.226	$\hat{\sigma}_{y.x} = \sqrt{\hat{\sigma}_{y.x}^2}$
Variance of Sample	0.152	0.152	0.288	$s_x^2 = (\Sigma x^2) / N$
Standard Deviation of Sample	0.390	0.390	0.536	$s_x = \sqrt{s_x^2}$
Coefficient of Variation	0.073	0.073	0.089	$v_x = s_x / \bar{X}$
Unbiased Estimate of Population Variance	0.156	0.156	0.294	$\hat{\sigma}_x^2 = s_x^2 \left( \frac{N}{N-1} \right)$
Unbiased Estimate of Standard Deviation of Population	0.395	0.395	0.543	$\hat{\sigma}_x = \sqrt{\hat{\sigma}_x^2}$
Standard Error of the Mean	5.453	5.453	6.182	$\hat{\sigma}_{\bar{x}} = \sqrt{\frac{\hat{\sigma}_x^2}{N}}$
95% Confidence Limits of the Mean	5.218	5.218	5.857	$\bar{X} \pm 1.96 \hat{\sigma}_{\bar{x}}$
Sample Mean	5.336	5.336	6.020	

\*D - DO data; S - SHOULD data; and I = IMPORTANCE data.

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report contains selective analyses of the survey data resulting from the CONARC Board Survey conducted in 1971 to assess the status of leadership and leadership principles in the Army. The objectives of the research were to determine if the original battery of items could be modified and refined and to generate additional data relating to the nature of leadership in the Army. The analyses were performed using a factor analytic technique and (Continued)		

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correlational/regression methods. Findings indicated six dimensions of leadership: Professionalism, Authoritarianism, Task-oriented Consideration, Need-oriented Consideration, Social Support, and Facilitation. The battery of items was reduced by ascertaining those items directly related to the dimensions and removal of redundant items. The basic response categories of the survey--DO, SHOULD, and IMPORTANCE--were shown to be highly interrelated, and recommendations were made for the removal of the SHOULD and IMPORTANCE categories in future research. The background variable, age, was shown to be highly related to the direction of scaled responses to questionnaire items.

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